



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D3391-023
Job Sheet 176078



Part No: D3391-023

Job Qty: 1 ea

Part Name: Mid Tube Assembly



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 4/16/18

Job Tracking No:

Due Date: 5/24/18

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DWG REV J SHEET 7 IPP A 05.10.20 New Issue KJ/EC IPP B IPP C 07.03.20 rev F dwg EC IPP D 07.03.28 re-format EC IPP E 07.10.31 ecn 1053P EC IPP Rev:F ECN 1056 07-11-13 DD verified by: EC IPP Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC IPP Rev:H 08-09-10 revH as per dwg DD verified by:EC IPP Rev: I 08-11-13 Removed steps per w/o, QC KJ verified by: ec IPP Rev:J add in seq 140 expire date &b# sikaflex DD 10.02.17 verified by:EC

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	5/23/18	5/23/18	0.00	0.00	Start Up Skidtubes-1		J.Y
100	Skidtubes	1 pcs	5/23/18	5/23/18	0.88	2.11	Skidtubes-4		J.Y DAS 38
110	QC	1 pcs	5/23/18	5/23/18	0.00	0.00	QC5		38
120	HandFinish	1 pcs	5/23/18	5/23/18	0.00	0.38	HandFinish1		BEB 18-05-18
130	QC	1 pcs	5/23/18	5/23/18	0.00	0.00	QC7-2		J.Y
140	Skidtubes	1 pcs	5/23/18	5/23/18	0.00	2.11	Skidtubes-4		J.Y
150	QC	1 pcs	5/23/18	5/23/18	0.00	0.00	QC5		BE DAS 38
160	Skidtubes	1 pcs	5/23/18	5/23/18	0.00	2.11	Skidtubes-4		BE DAS 38
170	QC	1 pcs	5/23/18	5/23/18	0.00	0.00	QC10		38 DAS
180	QC	1 pcs	5/23/18	5/23/18	0.00	0.00	QC5		9-89 38
185	HandFinish	1 pcs	5/23/18	5/23/18	0.00	0.38	HandFinish2		SA 18-05-18
191	SprayPaint	1 pcs	5/23/18	5/23/18	0.00	0.91	Spray Paint		
192	Outsource	1 pcs	5/23/18	5/23/18			ATE003-VC	39936	CZ 13/05/17
193	Packaging	1 pcs	5/23/18	5/23/18	0.00	0.00	Packaging2		11/18/05/18
200	QC	1 pcs	5/23/18	5/23/18	0.00	0.00	QC14		BEB 18-05-18
230	HandFinish	1 pcs	5/24/18	5/24/18	0.00	0.38	HandFinish4		BEB 18-05-18
240	QC	1 pcs	5/24/18	5/24/18	0.00	0.00	QC5		10 15 05-22 DAS
250	Packaging	1 pcs	5/24/18	5/24/18	0.00	0.00	Packaging3-1		21 58
260	QC21-SA	1 Ea	5/24/18	5/24/18	0.00	0.00	QC21		9-89 MAY 23 2018 9-89

Part Op 100 - 1-Cut tube to finish length as per Dwg D3391 2-Drill pilot holes using DT8796 (Do not drill "B" holes) and drill only 1
Descriptions: fwd saddle hole on one side only as per Dwg D3391 3-Open aft saddles and GHW holes to Ø0.4375" except for fwd saddle
holes 4-Remove .030" from Fwd indexing Ridge as per Dwg D3391 5-Remove indexing ridge on Fwd & Aft end of
skidtube as per Dwg D3391 6-Deburr, scribe batch # on aft end. 7- Locate D3391-021 in D3391-023 at 9.00" (see view
F-F) 8- Transfer drill one fwd saddle hole only to .188" dia, transfer drill all remaining fwd saddle holes using DT 8149
locating from previously drill .188" dia hole, using t-pins and clicos to ensure perfect allingment, open up previously tranfer
drilled pilot holes in D3391-023/021 using drill press. ON FIRST SIDE ONLY drill out 2nd and forth fwd saddles holes to
0.500" as per ON 2ND SIDE ONLY ream out 2nd and forth saddle hole to 0.499". D3391-021
BATCH: 9- Drill #30 pilot holes using wearplate Jig DT8217 Identify Ø0.375" holes with paint marker,
DO NOT DRILL HOLES #3-19-20 FROM FWD END OF JIG Locating from two fwd wearplate holes in D3391-023
drill remaining 6 wearplate holes in D3391-021 using DT8937 10- Open wearplate holes of D3391-023 assembly detail
section Q-Q to Ø0.375" (10 holes) as per Dwg D3391 Open wearplate holes of D3391-023 assembly detail section H-H to
Ø0.297" (20 holes) as per Dwg D3391 Deburr and blow out all chips from inside tube, scribe

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																		
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																		
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																		
Large Fab ☐	Composite ☐	Supplier ☐																			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval																	
Description Work Order Deviation		Disposition		Completed By																	
Lead hand / Supervisor _____ fication																					
Coordinator _____ al																					
Wrong nensions r tolerance ect Missing d quence																					

Root Cause	
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐

Pressure/Forced ☐ Bending ☐ Centre Not Conc ☐ Cracks ☐ Crimp/Kink/Ript ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in ☐ Marks/Chatter ☐	OTHER : ☐
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Hawthorn, VIC 3176
CANADA
TEL: 613 832-5200
Email: sales@dartaero.com
www.dartaerospace.com

DART
AEROSPACE

Container No: S062577
Part: D3391 - 023
Job No: 176078
Serial No/Batch: S062577
Revision: J
Inspector:

Barcode

Date: 04/18/18

140 - 1-Open float bag holes as per dwg 2-C'sink float bag holes as per dwg 3- Prepare tube for welding 4-Bond web in place as per Dwg D3391 & QSI 015. Adhere for 12 hours) A/R Sikaflex exp: _____ batch#: _____

NOTE: ENSURE WEB IS INSERTED IN AFT END OF TUBE

160 - 1-Weld crossbolt spacer as per dwg D3391 & QSI 004 2-grind weld flush *AK 038611*

185 - Re-alodine

191 - PRIME AS PER DWG AND QSI005 4.2.1.3.3 PRIMER BATCH: _____ PAINT AS PER DWG AND QSI005 4.2.2.4 PAINT: _____

230 - 1-Install Inserts as per Dwg

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D2500-1-100	Skidtube Extrusion	1 Ea (1 ea)	90-Start up Operation	<i>B/63553</i>
D3389-1	Web	1 Ea (1 ea)	140-Skidtubes	<i>5052800</i>
D3681-1	Spacer	5 Ea (5 ea)	160-Skidtubes	<i>5022530</i>
ALS4-1032-130	Rivnut	20 Ea (20 ea)	230-HandFinish	<i>5008959</i>
D3591-1	Bushing	2 Ea (2 ea)	230-HandFinish	<i>5026944</i>

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D2500-1-100	1	59	0
140-Skidtubes	D3389-1	1	2	0
160-Skidtubes	D3681-1	5	248	0
230-HandFinish	ALS4-1032-130	20	14,777	0
	D3591-1	2	55	0

Part Specifications

Specifications could not be found.

Plex 4/16/18 2:45 PM Dart.lajeunesse.marie

003298

DQA: _____ Date: _____

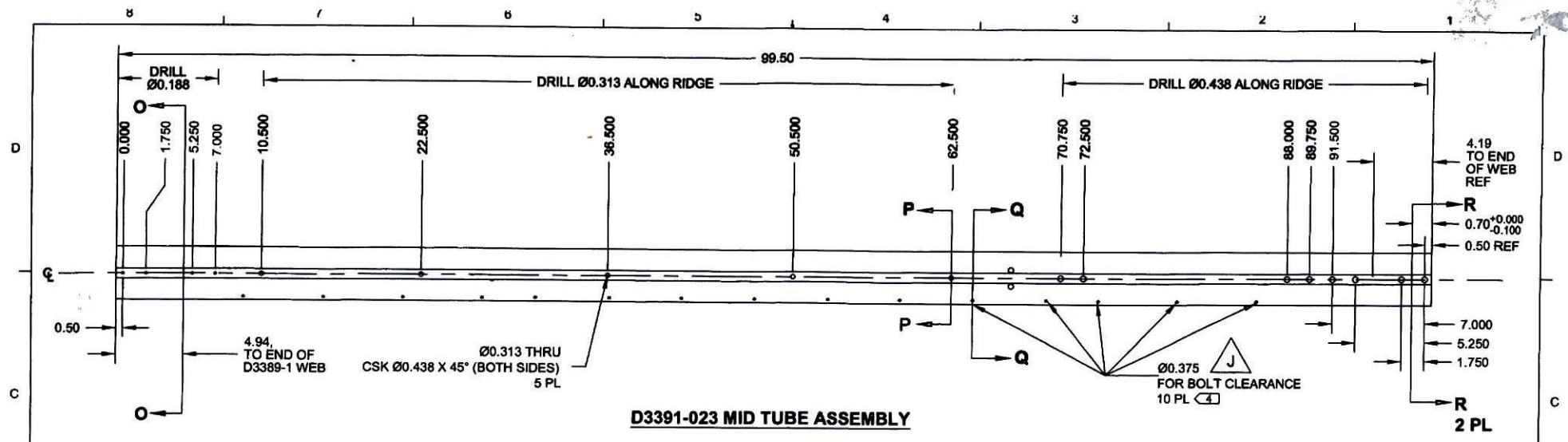
WORK ORDER NON-CONFORMANCE / UPDATE



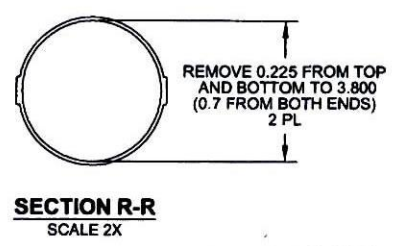
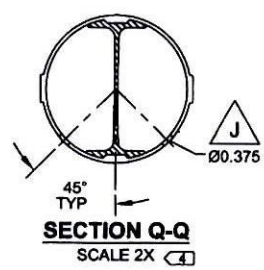
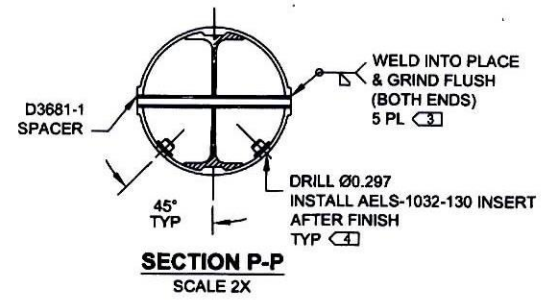
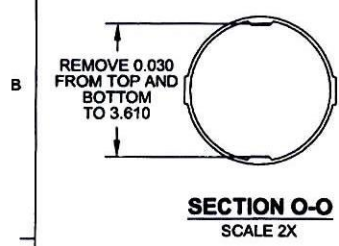
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								



D3391-023 MID TUBE ASSEMBLY



D3391-023 MID TUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT



D3391-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- 3) WELDING: PER DART QSI 004
- 4) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. BORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	ML	EUGENE, OR	
CHECKED	CP	DRAWING NO.	REV. J
MFG. APPR.		D3391	SHEET 7 OF 11
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE	16.01.14	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

RELEASED
2016-04-28

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION		AGAINST DEPARTMENT/PROCESS					
	Rework ☐	Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐			
	Scrap ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐			
	Use-as-is ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐			
	Suspected Unapproved ☐	Large Fab ☐	Composite ☐	Supplier ☐				

Date : _____	Step #: _____	QTY Effective : _____	MRB (QSI042) Approval
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Description Work Order Deviation	Disposition	Completed By

Root Cause			FAULT CATEGORY		
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039936**

Supplier: ATE003-VC
Atelier Debosselage
358 Principale
Calumet
QC
J0V 1B0 Canada
Phone: 819 242 5633

PO No: PO039936
PO Date: 5/17/18
Due Date: 5/18/18
Purchase Order Revision:
Revision Date:
Ship-To Contact: Lavoie, Chantal
Phone: clavoie@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	176078	D3391-023	Mid Tube Assembly	Firmed	5/18/18	1 pcs	1 x 0 pcs	1 pcs	\$125.00/pcs	\$125.00
	176077			Firmed	5/18/18	1 pcs	1 x 0 pcs	1 pcs	\$125.00/pcs	\$125.00
	176071			Firmed	5/18/18	1 pcs	1 x 0 pcs	1 pcs	\$125.00/pcs	\$125.00
	176072			Firmed	5/18/18	1 pcs	1 x 0 pcs	1 pcs	\$125.00/pcs	\$125.00
	176079			Firmed	5/18/18	1 pcs	1 x 0 pcs	1 pcs	\$125.00/pcs	\$125.00
Sub Total:						5	0	5		\$625.00

Grand Total: \$625.00

Order Notes

cel's At 18/05/18

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

CL

Plex 5/17/18 1:01 PM dart.lavoie.chantal